

Z88 EPROM

December 1990

Vol.4 No.10

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Club Addresses

All articles for **Z88 EPROM** and any membership matters (except Software Library) should be sent to:

ROY WOODWARD
Z88 USERS' CLUB
68 WELLINGTON STREET
LONG EATON
NOTTINGHAM
NG10 4NG

All requests for software from the Club Software Library, (but not special offers), items for inclusion in the Library, and EPROMs for erasure should be sent to:

IAN BRABY
THE SOFTWARE LIBRARY
Z88 USERS' CLUB
3/8 JENNER ROAD
GUILDFORD
SURREY
GU1 3PL

Please note that the **Library** address is the one to use when sending for a list of Library programs - this list is **not** available from the main Club address. Be sure to enclose £1 plus a SAE for the list.

The Club **CLI** Library is run by:

MICHAEL HEY
18 WOODSIDE ROAD
SANDIACRE
NOTTINGHAM
NG10 5GP

Any CLI's for the Library, requests for CLI's and the list of CLI programs (42p in stamps) should be sent to Michael Hey.

ALWAYS include your Membership Number with any correspondence. This is not just to be awkward - now the Club is large it can be very time-consuming searching the database for a member's number. Your number is printed on the address label of each issue of **Z88 EPROM**. Please be sure to enclose a stamped-addressed envelope with anything needing a reply.

Editorial

First of all, I hope you all had a happy Christmas, and let me take this opportunity to wish you all a healthy and prosperous 1991. I am sorry that this final issue of 1990 is so late, but intend to get back on schedule with the first issue in 1991. Please remember that there is no magazine for January, so February will be the first issue in the new year.

This issue is in fact the 25th I have edited. Looking back to issue one in September 1987, I don't think at that time I ever envisaged that the Club would become as popular as it has. Over 3000 members, with over 200 overseas, as far and wide as Australia and Japan. I think perhaps I should dedicate this 25th issue to the next 3000 members, and the next 25 issues, in the hope that the Z88 will continue to prosper, and continue to attract new people who will become "converted" like so many of us, to thinking Z88 style.

It is quite fitting that within this 25th issue, the Club is launching a major new service for members - the Application Library. This will operate in much the same way as the Software Library, but will work with Z88 applications. The aim is to build up a library of public-domain applications, and also, by agreement with the various software authors, be able to amalgamate several Z88 applications onto a single EPROM. This basically means that if you use several 32k applications at the moment, but are constantly swapping 32k EPROMs because of a shortage of slots, you should be able to have several of the smaller applications combined onto a 128k EPROM.

I see this as one of the most exciting developments so far for the Z88, and with the continued full co-operation of the various software houses, there should be no problems. The man we all have to thank for this new service is Steve Marsh. Steve has been working towards launching the service for some considerable time, and I know he has had to talk to very many people to ensure that this legal minefield can be defused and operated safely. Later in this issue is an article by Steve Marsh explaining exactly what the Application Library is and how it will operate. As more software vendors agree to let Steve work with their products, or as more public domain applications appear, there will be Application Library Updates appearing within these pages.

The final editorial point this time concerns a fantastic Members' Special Offer. Ranger Computers have agreed to offer a special members' price on their popular RangerDisk disk drive system. Full details are after Newlines, but it basically boils down to a massive saving of £97.75, or about 19% off the normal price!

Newlines

SHARPS OF MECHANICSVILLE will soon be selling a range of larger EPROM cards to complement their existing range of RAM cards. The new EPROMs will be 256k, 512k and 1024k in size, and their announcement is particularly timely considering the launch of the Application Library service

- with a 1024k EPROM, it should be possible to amalgamate almost every known Z88 application!

Prices in Pounds Sterling, including carriage from the US, are as follows: 256k - £95.00, 512k - £195.00, 1024k - £295.00. Sharps are at: Box 326, Mechanicsville, VA23111, USA.

DIARY DATES for two forthcoming All Formats Fairs in London - both are one-day events, the first on Saturday 2nd February, the second on Saturday 23rd March. Tickets cost £3, opening is from 10am until 5pm, and both will be held at the New Horticultural Hall in Westminster. As usual, both myself and Ian Braby should be there.

Members' Special Offer

By arrangement with Ranger Computers, current Members are able to buy the RangerDisk disk drive for the Z88 at an amazing discount. Normal price for this ultimate Z88 accessory is £517.50, but until the end of March 1991 members can buy it for just £419.75 - a massive saving of £97.75!! Both these prices include VAT, but exclude carriage.

To qualify, you must be buying the RangerDisk for your own personal use, and with your order you must send proof of current Club membership - send either the complete envelope that this issue came in, or the magazine itself - it will be returned to you.

Prices inclusive of delivery, and other details, are shown in the Ranger advertisement elsewhere in this issue. The offer includes the complete Club Library on disk free of charge. Please remember that the offer is valid until 31st March 1991.

Helpline

If you have a technical query, write to one of our Helpliners listed below. Please note that you should include a stamped addressed envelope or sufficient return postage for your reply.

CLI Files - Contact Michael Hey by post only at: 18 Woodside Road, Sandiacre, Nottingham. NG10 5GP

Z88 to Amstrad PCW Link - Please write in the first instance to: Mr A West, 16 Southway, Burgess Hill, Sussex. RH15 9ST.

zBASE, CLI and all Wordmongers products except TX and Comms software - Contact Jason Crook (ex of wordmongers) at 4 Salisbury Close, Princes Risborough, Bucks. HP17 0JF. Telephone 08444 7075. I will also write to order in zBASE.

zBASE - Help on commands and programming. I can accept info/programs on paper. EPROM, zTape cassettes or IBM disk. Contact Robin Jarvis, 27 Gloucester Road, Waterlooville, Hants. PO7 7BJ.

Z88 to Amstrad CPC Link - Contact Duncan W. Kennedy at 32 Otterston Grove, Dalgety Bay, Fife. KY11 5PA.

BASIC Programming - Contact Richard Russell at 59 Campbell Road, Gravesend, Kent. DA11 0JZ.

Interfacing Z88 to various hardware - Mac, BBC, PADs, also UNIX and C experience - Contact J.P. Knight Email JANET on jpknight@uk.ac.lut.suna, or snail mail during term time to Room 66, Hazlerigg-Rutland Hall, Loughborough University of Technology, Ashby Road, Loughborough, Leics, LE11 3TZ.

PipeDream/Diary/General - Contact Keith Winsor at 13 Swansea Road, Reading, Berks. RG1 8EY. Or Telecom Gold 82:TLR1747.

Z88-PCW Link - Using C-Port program. Please contact David Prestage at 47 Knighton Road, Otford, Sevenoaks, Kent. TN14 5LD.

Anything Educational - Please contact Bob Shore, 8 Anchor Close, Hathern, Leics. LE12 5HP. Telephone 0509 842670.

Z88 - Atari ST Links - Please contact Ian Salmon, 18 Fillioll Close, E. Hanningfield, Essex. CM3 8UY.

Machine-code Programming - Please contact Richard Smith, 29 Sandhouse Crescent, Scunthorpe, South Humberside, DN16 1JF.

Printer Setups - Please contact Mr. D. Stewart, 44 Margetts, Hemingford Grey, Huntingdon, Cambs. PE18 9EP. Please note that FULL DETAILS of the problem are needed, including copies of printer interface details and control codes. Be sure to include full return postage if you require any material to be returned.

Members' Letters

Carl Littlejohns (2943) Mold, Clwyd.

Dear Roy,

I noted the enthusiasm with which you greeted the fact that Z88 files were now available after paying a subscription! Whilst a professional system will be more reliable, it is still a long way away from most members. What is needed is not a Z88 area on a single BBS, but lots of them, all linked by Fidonet, so that members get to make either local or 'a' rate calls (less than 35 miles).

Anyway, we have to start somewhere, so I thought I'd tell you about a Z88 message area that has existed since October, but is undersubscribed (totally!). It is on a Fidonet BBS called Mailbox, in the North West. By the way, I have no links with Mailbox apart from being a 'user'.

Usual settings N/8/1 the number is: 051 428 8924

Sysop PETER TOOTILL

There is a file area, but with only a few files in it to date. As I said, if there is a need for a messaging system, perhaps other people into comms could arrange with a local BBS to create a Z88 area and make up an echo. The fact that it will be slow to start up means that it will not be much of a burden telephone charge wise for the BBS sysops.

Any message posted on Mailbox will get at least one reply- from me! On a different note, I have a major use for my Z88. At work people queue up for the IBM compatibles to use statistics and graphics packages.

I can use the Z88 to prepare the data elsewhere, then bung it into the IBM machines through a serial interface and a standard comms package on the PC. I also use it to exchange text from the PC to my own Amstrad PCW.

Unfortunately the battery life on my Z88 has descended further. Was down to 14 days, now down to 7. I suspect it correlates with my briefcase filling up, so I have emptied it, and will see if the problem continues. (I have already checked for pinched cables - a la Z88 EPROM, and I have a skinny Topper.) I hope my non-standard power supply hasn't damaged anything though.

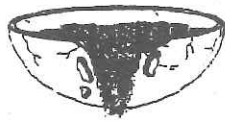
One final, editorial type comment. Do you think it might be a good idea to put some names with the addresses inside the front cover of Z88 EPROM, perhaps with any on-line system details for reference?

(Yes, I do think it's a good idea to put names in, if only so people know who they are dealing with. I suspect that your battery problem is more probably due to a deteriorating keyboard membrane. The membrane can go electrically 'leaky', and so drain the batteries quite quickly even with no actual computer use. - Roy.)



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The Z88 Specialists

SPECIAL ANNOUNCEMENT

RangerDisk for Z88 User Club Members

RangerDisk - 3.5", 720 K PC compatible disk drive for Z88 - transforms Z88 into a truly practical personal computer. Following negotiations with the Z88 User's Club, we are now pleased to announce a special price arrangement for members of the club for a limited period only.

To qualify for the special price of only £365.00 + VAT (normal price £450.00 + VAT), you must be a current member of the User's Club and be purchasing RangerDisk for your personal use. Proof of current membership of the User's Club is required with your order. This offer expires 31 March 1991 and is subject to availability of stock, so please do not delay.

To order your RangerDisk, simply send either £424.93 (including parcel post and VAT) or £432.40 (including next day delivery to most of UK and VAT). Alternatively, you can order by telephone quoting either Visa or Access (Mastercard) number. Please call for freight costs to Scotland, offshore or overseas.

P.S. This offer includes the User Club library on disk FREE OF CHARGE.

HARDWARE PRODUCTS

Battery Pack

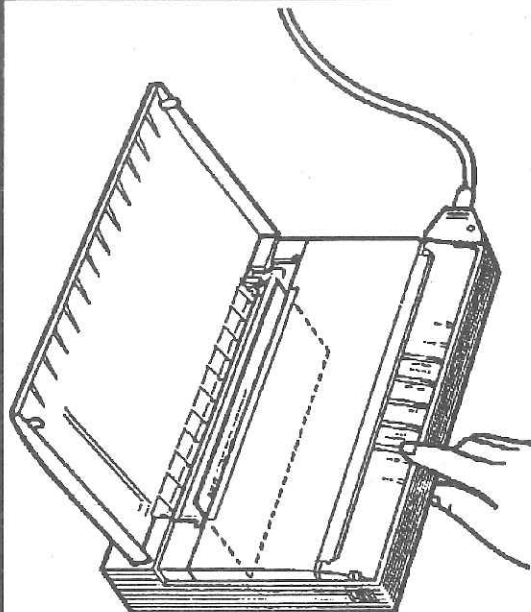
Rechargeable external battery pack, connects to Z88 mains adaptor socket, gives correct voltages and 8-12 Hr continuous operation, recharges overnight. Supplied complete with UK mains charger at £37.50 + VAT. P & P £3.50 + VAT.

ADAM

(Analogue Data Acquisition Module) is an analogue-to-digital converter module for the Z88. It provides 8 analogue input channels with a +/- 2v range and a resolution of 100 μ v. Power is supplied externally, or from a modified version of the Z88 supplied by Ranger. ADAM is available from stock at £250.00 + VAT.

Z88

We keep the entire range of Z88 hardware and most supporting items in stock. Please enquire for details and prices.



A laser printer in your pocket? Well, not quite, but the new **Canon BJ10e bubble jet printer** has resolution as good as some lasers and prints real black on white, banishing the fuzzy grey on white of older portable printers to the dustbin of history!

BJ10e has a variety of built in fonts and can be used with both Z88 and desktop PC's. An optional sheet feeder holds up to 30 sheets for long documents.

BJ10e is now priced at only £299.00 + VAT and is available from stock. The optional sheet feeder is £54.00 + VAT and the battery pack is £39.00 + VAT. Shipping is £4.50 + VAT (parcel post) or £11.00 + VAT (next day).

SOFTWARE PRODUCTS

RangerLink RangerLink is designed for general purpose PC to Z88 communications and features much faster data rates than other PC-to-Z88 products, multiple file transfers and true data transparency.

RangerLink consists of an application EPROM for the Z88, a PC disk (please specify 3.5" or 5.25") and a connecting cable (please specify 9 or 25 pin). The application is driven from the Z88, which displays "windows" showing the current PC and Z88 directories, together with a command menu.

The EPROM and disk also contain the original PC Link II software for compatibility with earlier systems.

RangerLink is available now at £49.50 + VAT. P & P £2.50 + VAT.

Please note that all prices exclude VAT. We accept official orders from qualifying UK companies and government organisations. All others, cheque or P.O. with order please. Credit cards accepted. Next day delivery available on all items, subject to stock, £11.00 in most of UK.

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Northampton NN2 7AH



Telephone: (0604) 791064
Fax: (0604) 791114
Telex: 94017588 TBIC G

Wordmongers Ltd.

2 Silverdale Close, Penn, Bucks. HP10 8JP. Tel 049 481

Epistle from Penn.

I can't quite rival 'Letter from America' but here goes. Two main items occupy the Wordmongers page this month. First is news about superchip upgrades, and the second item is about relational databases and the use of multiple files.

Superchip upgrades

All Superchips with THINKz have now been upgraded. the current version of THINKz is 1.2. The new version has much improved file handling and better preservation of graphic characters. A much more solid program than before.

Since its release, we have a report of one new phenomenon related to the import of data from Pipedream. If you import a file from Pipedream, THINKz always assumes that the first item has subsidiary items. If the first item does not have any such 'children', THINKz treats all subsequent lines as having been adopted (sic) and puts them all in a subsidiary position.

Many thanks to Eamonn Herlihy for not only noticing this bug but reporting it so carefully.

Relational databases

The most common question about zBASE is "What's relational?". The short answer is that more than one data file may be open at the same time. This means that the design of a database system can be more memory efficient than a single (or flat) file system. An example may assist.

Consider a database for Life Insurance brokers. The name and address data are a constant format for each and every client. However, not every client will have the same number of policies. If a flat file was in use, a fixed number of policy spaces would have to be selected. Say 4 was selected. Even if a client only had 1 policy, all the other three slots would be left blank occupying RAM space. On the other hand, if a client had 5 policies, a whole second record would have to be started.

In a relational system, each client would be given a unique reference number (say surname initial plus a number) and a record in the name/address file. As each policy is recorded for that client, a new record is started in a second data file (the Policies file) which is linked to the first file by the unique ref code.

E.g

Name & address file:
(Field, type,width)
Ref code,Character,4
Name,Character,20
Address,Character,100
Phone,C,12
Date of birth,C,8
Spouse name,C,20

Policies file
Ref code,C,4
Insurance Company,C,15
Policy type,C,3
Payment period,C,1
Maturity date,C,8
Projected value,N,9

Happy New Year
Tony Kaye

A similar pattern can be used in any situation requiring what are often called 'Transaction' records. Sales ledgers are a classic example with one file holding the sales account data and a second file containing details of each invoice.

Product Enquiries: Please Call 030381

Z88 Application Library

by Steve Marsh (0770)

What is an "application"?

Well, a simple definition is "a Z88 program, stored on ROM, which can be accessed from the Index" i.e. you call it up by using the square key ([]) plus a letter. An example of this would be [R which invokes the popdown calculator. As you will know, there are several such applications built in to the Z88.

It is possible to supply additional applications which plug into one of the Z88 slots at the front of the machine, and once plugged in there, it is accessed in exactly the same way as an internal application. An example of this would be Wordmonger's zBASE or Ranger's Vision-100. These programs are stored on a 32K EPROM chip with a special header record that tells the Z88 to treat it as a ROM rather than an EPROM (This explains why you can't save files to an EPROM which has an application stored on it).

Because of the nature of EPROMs, it is difficult to amend these applications; but not impossible. Armed with the Z88 Developers' notes and aided by Mark Stevenson, I worked out how to write to EPROMs and discovered how the applications were organised. The aim of this was to be able to write new applications myself.

In doing so, I realised that there was quite a bit of free space on some EPROMs - there is over 16K free on SCRAZBLE and over 30K free on PCLINK 2!

I also realised that it was possible to merge up to 4 32K EPROMs on one 128K EPROM. This reduces wear and tear on the slot connector, and frees up 4 32K EPROMs for data storage. (remember, an EPROM and a ROM are physically the same - it is only the data stored on them which makes them different).

For example, I own Wordmongers' excellent Superchip 2 to which I have added PCLINK 2 and EP-Fetch. I seldom need to swap ROMs now! Talking to other Z88 users, I realised that these were very useful features - and I am now in a position to be able to announce the introduction of the **Z88 Application Library** and the **Superchip Service**.

Z88 Application Library

The aim of this is to encourage amateur programmers to write software for the Z88 in ROM format. There are currently only two programs in the library, but I hope to be able to increase this number in the near future. They are:

- A001 (2K) EP-FETCH - A filer-like utility to make fetching files from EPROMs much easier.
- A002 (16K) SCRAZBLE - The shoot 'em up game (donated by Wordmongers).

The size of each application is given to give you some idea of how many applications will fit on one ROM, though due to the problems of relocating machine code, it may not be possible to make full use of the whole ROM.

If you want any of these programs, please send me a blank 32K EPROM and a stamped, addressed envelope. It is important that you do not put the EPROM back into the Z88 once it has been erased as the Z88 may write to it, making it impossible to transfer the programs unless the EPROM is erased again. If you do not have an eraser, then I will do it for you - please include the normal club fee of 50p for this.

If any of you have written applications (or programs written entirely in assembler which can be converted to an application) and wish to donate them to the library, please contact me. Full documentation and source assembler would be ideal; however I am a realist and will take whatever I can get!

Superchip Service

This will allow you to put several of your ROMs onto one ROM. This has proved to be a legal minefield, but most of the problems have been ironed out, and to date I have received agreement from both Cambridge Computers and Wordmongers to allow their software to be reblown. The service will operate in the following way:

1. Send me a request of what you wish to be done, (e.g. EP-FETCH and SCRAZBLE to be added to the PCLINK ROM, or PCLINK and EP-FETCH added to Superchip 2) **along with the original ROMs**. If you want several 32K ROMs combining into one 128K ROM, then please supply a freshly erased 128K EPROM too. Please include a telephone number where I can contact you.

2. I will transfer the programs and erase any original ROMs which are no longer required. You will therefore only have one copy of each program returned to you. I have been asked to do this by both CC and Wordmongers to remove the possibility of piracy. I will place a sticker on the new ROM to indicate that the ROM has been blown by the Z88 Users' Club and this will be honoured by CC and Wordmongers in the event of your needing an upgrade (certain upgrades will be available through the user club - details to be announced).

3. I will normally return the ROMs within one week, but if you have asked for the impossible, or I need more time, I will call you before proceeding. A new combination of ROMs can take me several hours to rearrange, so please be patient!

4. The charge for this service will be £1 plus 50p per application, including recorded delivery P&P. Any profits made from this exercise will be donated to the Users Club.

For example - to put Scrazble and EP-Fetch onto the PCLINK2 ROM would cost £2.50 (£1 + 3 * 50p). Combining 4 ROMs onto 1 128K Eprom would cost £3 (£1 + 4 * 50p).

5. As previously mentioned, this service presently only applies to PCLINK or Wordmongers' products. I will have to obtain the permission of any other software producers before I can proceed. I am already in discussion with Ranger, and I will have contacted most other software suppliers by the time that you read this. Previous experience has shown that a quick response to my queries is extremely unlikely.

I believe that this new service makes the Z88 an even better machine to use. It's just a shame that CC don't make bigger EPROMs, as then you would be able to put all your software onto the one ROM.

One final point. Dave Hampson (Ranger) tells me that there may be problems with putting all your software onto one ROM, as the Z88 cleans up its memory when you remove and insert application ROMs. I have been using this system for well over a year now and have had no problems, nor have I been able to verify this from any other source. However, from time to time it may be a sensible precaution to open the door, remove the ROM, close the door, wait a few seconds until the Index reappears on the screen and then put the ROM back in.

Steve Marsh.
Z88 Application Library
5 Pringle Court
Little Stukeley
Cambridgeshire
PE17 5BH

STOP PRESS: Paul Wallace, of CCL, has just given me a short application which makes it possible to call up Basic programs as if they are an application, and store them on the ROM, freeing up space on the Z88. I will let you know more when I find time to investigate it further.

A Letter From Comdex

by David Viewing (1441)

Las Vegas, Nevada, USA Wednesday 14 November, 1990.

The famous city of Las Vegas, Nevada is situated in the middle of a parched desert about 250 miles inland from Los Angeles, California, for whose citizens it provides a gambling playground. (Most types of gambling are illegal in California). Surrounded by high mountains and only 70 miles west of the Grand Canyon, it also is a popular centre for exploration of the fantastic landscapes of the American South West, whose breathtaking beauty and silent loneliness defy description. Only 20 miles from the city, mountain lions roam the heights of Mount Charleston, beyond the reach of the thousands of tourists whose cars they can clearly see on the freeway far below.

Las Vegas is also the biggest convention centre in the US, and home of the biggest computer exhibition in the world - COMDEX Fall. This week, Las Vegas provides sustenance and amusement for a record 130,000 COMDEX Fall (Autumn) delegates who have travelled here from all corners of the globe. Incidentally, quite how all these delegates packed into the town's 75,000 hotel rooms is a curious question.)

COMDEX is a PC show, although some Mac and non-compatible vendors frequent the less fashionable corners of the vast exhibit space.

Walking the halls (in 5 locations, down from 7 last year but with increased floor space due to the opening of the new Sands exhibition centre), it is easy to forget that there are other technologies than PC. And that is how it will be.

Incidentally, there is also a smaller COMDEX spring, held in Atlanta, Georgia and even a COMDEX Europe. These are not to be confused with the definitive article - which also happens to be the largest trade show held in the US.

Arrival of the notebook.

Beyond doubt, this year's theme was the 'notebook' PC. Hundreds of delegates pacing the floor writing their notes into Z88 clones? No. The "notebook" PC still weighs at least 4.5lbs, has a battery life of 3Hrs or less, clamshell case and costs around \$2500. Try walking the Aisles with that!

So first things first: which computers, "notebook" or not, were on show that are light enough to hold in one hand and use with the other, have battery life to last a full working day, data capacity for a full days work and a full size, typeable, keyboard? Answer: None.

Note the 'none': CCL were neither present nor represented. For that matter, neither were that other great hope of British technology, Psion. Indeed, the only vestige of the UK's former leadership in portables to be seen was the Atari Portfolio, designed in Guildford, which had a good showing with several VAR's demonstrating applications.

COMDEX is all about promoting products into the US domestic dealer channel - the only effective way to sell computer products in this vast country. Failure to appear is tantamount to surrender. (Another notable absentee was Tandy corp.)

Coals from Newcastle: Notebooks from Taipei.

Now for the "Notebooks". What is really interesting is the speed with which the Taiwanese have adopted the new technology, and made it their own. It was only at last year's COMDEX that the first practical ultralite portables were shown, and yet of the dozens available this year the majority were from Taiwan. (True, NEC's definitive 'Ultralite' was shown at the 1988 show, but was too compromised to be an effective tool). It is as though the Taiwanese have identified what Z88 users have known for years - that to be truly useful, a computer has to be light enough to carry anywhere. However, the only technology available to the Taiwanese is DOS -

there are no Macintosh ultralights - and so the exercise becomes one of choosing compromises.

DOS applications have to have a full size, CGA, EGA or VGA screen, and so all notebooks have awkward 'clamshell' designs as a result. Clamshells work well when used as a miniature desktop computer, but are inconvenient when used in the hand or on the lap. VGA (640 x 480 pixels) is a feature of many of the new notebooks, although few notebook applications can benefit from the increased resolution. Important advances in the side-lighting of LCD screens using Cold Cathode Fluorescent tubes reduce power needs and make the screens much thinner: They now consume only about 5 times as much power as the entire Z88 and are about half its thickness. Backlighting is a benefit, of course in many situations - but none of the new screens have the reflective contrast of Z88, so you have to use the backlight all the time, with all the related problems of size, weight and battery life.

Colour LCD: here at last ?

Colour TFT (Thin Film Transistor) screens are a reality now, after years of gestation. Curiously, some companies with only prototypes, eg Hitachi, showed screens less impressive than those in commercially available computers, eg Sharp. There really is competition amongst the Japanese ! Yields on these screens are still not better than 20%, apparently. Somewhere in Japan, there must be dustbins crammed full of TFT screens with one pixel (out of more than 900,000) missing!

Some of these colour laptops have prices as low as \$5,000, but they are also large, heavy and thirsty for power. The colour notebook is still some way off.

Come back, rotating media !

The next requirement of DOS is for rotating media, since DOS applications are vast in comparison with frugal Pipedream both in their own size and in their use of memory. While some miniature computers do rely on solid state memory, for instance Poqet and Atari, true utility can only be achieved with a genuine hard disk. In this area, fantastic advances are being made with 2.5" hard disks now offering 60Mb in the some of the most beautiful examples of mechanical design that I have ever seen. However, all this still means size, power and weight that are excessive in Z88 terms.

These developments are consistent with the Japanese philosophy of "mechatronics", once explained to me by Susumi Azaiwa, patentee of the digital watch. There is nothing to prevent mechanical systems being made as small as electronic ones, with similar degrees of precision, quality and longevity. All this has been known to watchmakers for centuries, but the implications of mechatronics still seem to be unknown outside Japan.

Think of it this way: If your personal notebook had a 2.5", 1000 MByte 10mS hard disk with a 30 year operating lifetime, would you ever bother to erase a file ?

Everlasting DOS ?

Finally, there is DOS itself. (Interesting how much emphasis was placed on DOS, not OS/2, this year). DOS is a single task system that needs add in-products like Windows or Quarterdeck to provide the instant context - switching capability of Oz in the Z88. A salesman promoting Deskview X-Window put it succinctly: "A major benefit (of Deskview) is that it only uses the first 2Mbyte - all the rest of your system memory is left free". Try that on your notebook computer!

The X-Window phenomenon is interesting: Big, expensive terminals that contain enough margin to justify a salesman actually calling on the client - just like the good old days. And better still, the Taiwanese haven't found X-windows quite so digestible - yet. Essentially, X-windows is a way of providing Unix users with the sort of WYSIWYG user friendliness that PC and Macintosh fans take so much for granted. For corporate organisations gullible enough to spend 10 times the price of a PC on a Unix workstation that, through X-windows, can be used for the same applications (WP, personal desktop, etc.), here is a way to escape from the boring tedium of deciding which clone to buy this week.

X-Windows is likely to be an important gravy train for some time to come.

CPU's move up.

Another impressive development is the application of 286 (PC-AT) and even 386SX technology to the new notebooks, leapfrogging the PC-XT stage of the original laptop portables. A 386 notebook runs typical applications 10-20 times faster than a PC-XT - a performance gain that is becoming less academic as DOS applications grow and grow.

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If your plan is to use windows to mimic some of the functionality of Z88 in your new notebook, a 386SX processor is not a luxury.

Smart Cards.

After years of uncertainty, credit card memory looks at last set fair to become a tangible commodity. Spearheaded by the Japanese JEIDA committee, now adopted as the US PCEIMA standard, credit card static RAM, Flash and EPROM now run to 2M Bytes. Static RAM is now priced at about \$500.00 per M Byte, about the same as Z88 RAM, but is likely to fall because of the large number of vendors searching for platforms. Interestingly, one problem the salesman can't cope with is still "what happens if you pull the card out while it's running?": most platforms invite you to do this by having the card project out of the side, completely lacking Z88's flap and switch protection. The answer is that despite the cards being battery backed, if you pull them while running, any open file is gone. Yet another instance where Z88 is years ahead. But make no mistake: credit card memory, often with industry standard applications like WordPerfect burned in, is here to stay.

One product that does get all this DOS technology into a lightweight package is Poqet, a £1300 1lb computer that really has DOS and a CGA screen. However, Poqet is afflicted with a truly execrable keyboard and tiny characters on its tiny, dim LCD. However, you can get WordPerfect on its credit card ROM, so it should be taken seriously if you have good eyesight and a steady hand. I don't count Portfolio in this discussion because it doesn't run DOS applications like WordPerfect or even have a proprietary WP like Pipedream.

Evolution, not revolution.

Both these products were at last years' COMDEX fall, so can't count as new. Despite this being the year of the notebook, there were no new lightweight platforms at all. The industry, responding to users mixed response to these deeply compromised designs, has decided to pursue the goal of the notebook PC. This relentless pursuit will lead to a 1lb, full size keyboard, colour VGA, 386 50Hr battery notebook sometime before the millennium. When it does, no-one will need compromise on portable computing power: but like flat-screen TV, it will take time yet to arrive. Right now, this two year-old, Z88 S/No. 39730, is still the only notebook computer that I would want to carry from booth to booth in this vast exhibition - and for some years to come.

Pound Vs. Dollar

Economists are supposed to compare the relative value of different currencies by comparing "baskets" of similar commodities, weighted appropriately, to obtain a "real" exchange rate. They must have overlooked the £/\$ relationship recently, because I don't recall seeing the figures I am about to present in any paper recently. My examples, with US price and my estimate of the ratio:

9 days car hire: \$260 (2.5:1) Good motel room: \$40 (2:1)
Hamburger at Denneys (Vs. Little Chef) \$4.00 (2:1) Cessna 152
\$36/Hr (3:1) Quality detached home in LV \$100,000 (2:1). Petrol
\$1.50 (3:1).

However, for Japanese imports, the situation is quite different with US prices very similar to the UK equivalent.

Within these figure and the EMS decision resides a final death sentence for UK manufacturing industry. Can you imagine trying to produce a portable computer in the UK, with our level of costs, and selling it here ? Z88 is a good example, having an effective US price of about \$600 (for an all-in-one, after allowing for higher distribution margins), or about the price of a clone laptop.

Of course, the over-valued pound is a direct result of UK government exchange rate policy. The booths at COMDEX are populated by thousand upon thousand of young, competent and successful Japanese and Taiwanese while CCL, Psion, Apricot, Agenda and Husky are nowhere to be seen.

When I decided to develop the first Husky computer in 1980, I saw it as a chance to build a new world industry - the hand held computer industry - based in Britain. I know that Sir Clive Sinclair had similar hopes for Z88. Now, from the teeming floor of COMDEX, all that seems like a distant dream. This industry belongs to the Japanese and their former colony - Taiwan - and good luck to them.

Today, though, 14th November 1990, just like that British flag still flying in Hong Kong, Z88 is still the best notebook computer in Las Vegas, its place in the history of wasted opportunities assured.

(David Viewing is currently Managing Director of Ranger Computers Ltd. Previously holding the same position at Husky Computers, he has had a great deal of influence on the development of portable computers in the UK. - Roy)

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PipeDream is now available for the IBM PC and compatibles, and the Acorn Archimedes. It has been completely rewritten for these computers and contains many new facilities, whilst retaining complete file and keyboard compatibility with the Z88.

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Daisywheel Typewriters

by Philip Hodson (0713)

"With all these printers around, why should anyone bother with a daisywheel typewriter?" many computer hacks will ask. They will then continue to list the disadvantages relative to the computer printer. Lets deal with those disadvantages first, and then consider their merits.

The major disadvantage of the daisywheel typewriter is that it cannot support graphics in any form. Also, they print out more slowly. However, my Olympia Carrera works at about the same speed as my Brother HR5 printer. A further disadvantage is that they clatter quite sharply, but then again that varies with the make.

A point to bear in mind about typewriters is that they use ribbons. They are of two types. Carbon correctable ribbons give the near perfect print quality, in my view slightly better than a laser printer. But they have a finite life of around 40 - 50000 keystrokes. I write about three letters a week, and each carbon ribbon seems to last me about 10 weeks; but once I used one to print a whole series of articles, and it didn't seem to last long at all. My Carrera carbon ribbon cassettes now cost £3.16 each. So they are not cheap.

The second type of ribbon, is a cloth one. This is much more economical, and gives a print similar to most manual typewriters. The quality is roughly equivalent to a good dot matrix print. The manual will tell you that the the ribbon will last for around 700,000 keystrokes. The cassette costs a little less than the carbon one.

With cloth ribbons the major thing to go wrong is that the ink dries out. However, you can correct this yourself simply by impregnating Stamp Pad Ink into the fabric, thereby turning your fabric ribbon into a 2,100,000 character champion simply by repeating the same three times. I think my cloth ribbon is on its tenth ink refill by now! If you choose to do this, make sure the typewriter you intend to buy has a fabric ribbon cassette which you can prise open. You can on the Carrera's. As you do this, there's a good chance of the whole ribbon cascading out in an irreplaceable cats-ball. So be careful.

On one side of the cassette is a large ratchet wheel and a little spring-loaded smaller ratchet wheel, which together, pull the tape across the arms of the cassette. When you open the cassette, they will probably come adrift, and it requires a cool head to slip them back, together with the tape between the two ratchet wheels, and to get the cover back on. But with practice it is quite possible.

When the cover is off, take your bottle of stamp pad ink, and using a small paint brush, dab ink over the concertinered ribbon, trying not to disturb it. You will probably need about 40- 50 dabs, which will percolate ink throughout the ribbon. Do not use too much ink, or you will end up with a sopping, leaking mass. Now clip the casing together, and leave it overnight to allow the ink to percolate evenly through the tape. Leave it preferably on a piece of old newspaper, just in case you have put too much ink in. Now check the state of your own hands, and if they are covered in ink, wipe you hands all over the settee in order to get evicted from your own home!

Carbon ribbons produce a very good type finish. I was assured by an expert who sells both typewriters and laser printers, that laser printers are far superior in terms of print quality. I was interested, because I produce 35mm visual projector slides from my typing, and any imperfection is magnified many fold on a viewing screen. I was shown print from a £1000 pound Laser printer, but it wasn't quite as good as from my daisywheel typewriter with its carbon ribbon fitted. The laser printer had tiny "fluffy" strands emanating from the edges of the characters. No such thing occurs with a daisywheel.

On that basis, I think you can be pretty certain of buying print quality with a daisywheel typewriter as equal as you would with an expensive laser printer. My daisywheel typewriter will cost me around £270 (VAT incl) together with its computer communications box. Other good ones may be considerably less than that. I believe Olympia's latest is one which has an internal comms box, and the whole unit is only around £185.

Another advantage of the daisywheel typewriter is that it may be more acceptable to your wife or with your secretary. Most women accept the typewriter as part of their domain. Many throw up their hands in horror at the thought of operating a computer. So you may get more usage out of your capital equipment if it's a typewriter than if it isn't.

Another point to look for is the length of the carriage. Many of the better typewriters will permit an A4 sheet to be inserted on its side, thereby allowing you to type along the length of a page. Many smaller computer printers at higher cost, will only accept A4 paper the normal way around.

At the October Z88 meet, there were some high quality dot-matrix printers. One at about £350.00 produced a good print quality, but dot matrix printers simply are not of the quality of daisywheels.

I've found my Carrera to be extraordinarily flexible. I've edited the Z88 PrinterEd with the following features:

The typewriter supports a # sign; also fractions, and a degree sign, which the Z88 does not. However, the characters on the Z88 which do not type out, are changed in the Printer Ed to those fractions and the degree sign that the Z88 cannot display. It is little inconvenience having | on the Z88 screen to print as a 1/2, because a sticky label on the Z88 key indicates 1/2. So, after seeing the sign in the display, one can look to the key to discover what it will print as. Likewise with the other keys.

The highlight codes are modified as follows:

Highlight codes 1 and 2, <>PU and <>PB are kept as Underline and Print Bold. <>PX Extended sequence is converted to a line feed in reverse. <>PI Italics, has a code entered which will take the typewriter off-line. The same highlight repeated takes it on-line again. The useful thing here, is that you can stop your printing to change the daisywheel to an Italic script, and then again to change the wheel back again to normal type.

Most typewriters have daisywheels which will print in a range of typestyles, and it is worth checking to see whether the one you are choosing has the range you need. For some types of editing work, it is very useful to take the printer off-line while one considers the next step. Highlight code 8 will do that.

<>PL and <>PR, Subscript and Superscript are both supported on the Carrera using the appropriate codes.

<>PA Alternative Font is coded which creates a line feed of 0.75 of one line spacing. This was really useful for when I set up to type names onto 300 round labels each of 14mm diameter, there was very little room to work. But with a micropitch daisy wheel on 15 Pitch, printing was achieved quite easily. More of this later.

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The highlight code to decrease the line spacing is set at the beginning of the document and then all line feeds are at 0.75 of a line spacing until the code is entered again, whereupon normal line spacing resumes.

The comms box allows you to design the amount of line feed in tiny amounts, so you could have a line feed of only a quarter of a line spacing, or a half, or whatever variation you might choose in steps of 1/96 of an inch.

<>PE User defined: I've entered a code to suppress printing to the end of the line. It switches off at Carriage Return.

This is really useful when you want to enter a set of instructions in your Pipedream document, but you do not want them printed out. I use it on my File which is tailored to print text onto my With Compliments Slip. There isn't much room between a logo down the left-hand side and various other bits and pieces on the slip, so anything typed in must be exactly in the right place. It all works as long as the typewriter is set to 10 Pitch, so as a reminder to myself, row 1 of the file reads [8]"Remember to set only 10 Pitch before printing!"

Obviously, I do not want that printed. Highlight code 8 effectively suppresses that line.

Because of shortage of space, I do not want that line left vacant, so by prefixing the next line with Highlight code 3, Reverse line feed, the printer types into the vacant row.

The Comms box allows for setting of horizontal pitch, so one could use a highlight code to achieve a horizontal pitch of less than 15 if required.

I use two Printer Ed files, one with the End of Page set at 12, which causes the typewriter to eject the page, after printing, the other with the End of Page set at 10, which does not cause a page eject. The latter is useful when you are trying out various creations like CLI files which involve a print-out, etc.

The default setting for the comms box is set at 10 pitch, and a line feed of one line, so anything printed will be at these settings. It is possible to change these values in the comms box, a somewhat tedious procedure which takes about one and a half minutes once you know the procedure. This would be useful if you knew you wanted, for example 12 pitch, and nothing else.

However if you change pitch frequently, another setting of the comms box will allow you to set pitch, and line feed, from the typewriter keyboard. This of course is very much faster, involving simply a pressing of two keys. Whatever is set on the keyboard is overridden by the highlight codes you may have set in the Z88.

There are many other possibilities available with the comms box. But the general message of this is, when thinking of buying a typewriter, have a look at the instruction manual for its comms box too, to find out what it will do.

All in all if its quality of print you want, and you are not too bothered about speed, daisywheel typewriters with a computer comms box will probably give you all you want at a fraction of the cost of the better computer printers.

And if you are as miserly about wasting paper as I am, and you discover one spelling mistake on an otherwise perfect print-out, rather than throw the whole sheet away, you can use the typewriter in its own role to correct it!

Library Corner

This month sees more updates and revisions than new programs, although there are two new additions! We also have a change of BBC sub-librarian - Chris Rogers, who has handled the BBC format previously, is unfortunately now unable to commit the time required.

I would like to thank Chris for his help in the past. The new temporary BBC sub-librarian is:

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Steve can handle Archimedes disks, and BBC standard 40- or 80-track disks ONLY.

Upgraded Programs:

Z047 Z88fax - I have modified this to run from the /LIBRARY sub-directory without any need to rename the files. The CLI file also points BASIC to this sub-directory before launching the main program. It is also smaller at 22K.

Z079 STATISTICAL SUITE - This is now Version 2; extensively modified and added to, with new options and routines available. It has also grown to approximately 94K.

Z106 SQUEEZ/UNSQUEEZ - the original program has been re-worked and combined to make it more efficient by Ted Ovenden (0633). 4.5K. A=documentation B=program

ZB05 Address Suite. I have almost completely re-written this and made it more efficient, harder to crash and, generally a little more pleasing to the eye and friendlier! 10K

New Programs:

Z129 KERMIT-88 by Wally Wright (0759). An almost complete rendition of the KERMIT file transfer system (there are just a couple of parts which are currently "not implemented") together with VT52 terminal emulator. 30K. A=documentation B=program

Z130 SQZENC by Ted Ovenden (0633). Not content with re-writing the SQUEEZ program, Ted has also added an encryption routine. 6K. A=documentation B=program

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